Application Note

ShoreTel®

ST-10010
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IP8000 Conference Phone Configuration Guide

This application note provides the details on adding the IP8000 conference phone to the ShoreTel IP phone system. This information applies to ShoreTel Release 6.1, 7.0 and 7.5.

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Overview

This document describes how to integrate the IP8000 conference phone into the ShoreTel IP Phone System.

Note: This information pertains to ShoreTel releases 6.1, 7.0 and 7.5 which will allow the conference phone to connect by way of "SIP trunks". This means that not all call features are available to the conference phone. However, the features required for everyday conference room use are supported including the ability to make and receive calls, basic call transfer, initiate a 3 party conference call as well as be a participant in a 6 party conference call.

Requirements

The following requirements are necessary to integrate a IP8000 conference phone to the ShoreTel IP Phone system as described in this Application Note.

ShoreTel Requirements

- ShoreWare Server Software, ShoreTel 6.1 or higher. The following build numbers are required:
  - ShoreTel 6.1 : Build 11.15.3203.0 or higher
  - ShoreTel 7.0 : Build 12.5.8101.0 or higher
  - ShoreTel 7.5 : Build 12.12.6113.0 or higher

  Versions prior to this release will not support the IP8000 conference phone
- ShoreTel SIP Trunk licenses are required
- A total of 2 SIP trunk licenses is strongly recommended. This will support Call Transfers. A single SIP trunk license will only support basic inbound and outbound calls.

Note: To optimize performance of the IP8000 conference phone, be sure to consult Application Note ST-10026 "ShorePhone IP8000 Conference Phone: Best Practices"

Configuration Overview

The following steps are required to configure the IP8000 conference phone to work with the ShoreTel system:

1. Configure General ShoreTel system settings
   a. Call Control Options, Site and Switch settings
   b. Setup Trunk Groups
   c. Setup Individual Trunks and User Groups
   d. Setup Off system extensions

2. Configure the IP8000 to function with the ShoreTel system

ShoreTel Configuration

This section describes the ShoreTel system configuration to support the IP8000.The section is divided into general system settings and trunk configurations (both group and individual) needed to support the conference phone.

ShoreTel System Settings - General

The first settings to address within the ShoreTel system are the general system settings. These configurations include the call control, the site and the switch settings. If these items have already been configured on the system, skip this section and go on to the "ShoreTel System Settings – Trunk Groups" section below.

The "Call Control / Options" screen will then appear (Figure 2).

Call Control Settings

The Call Control Options within ShoreWare Director may need to be reconfigured. To configure these settings for the ShoreTel system, log into ShoreWare Director and select Administration, Call Control and then Options (Figure 1).
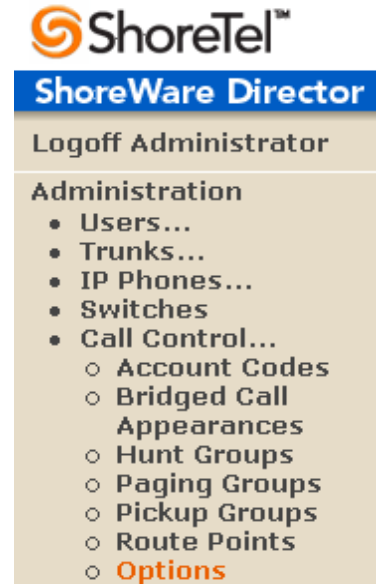

Figure 1 – Administration Call Control/Options

Figure 2 – Call Control/Options

Within the "Call Control Options" screen confirm that the appropriate settings are made for the "Enable SIP Session Timer", "Intra-Site Calls", "Inter-Site Calls" and "Always Use Port 5004 for RTP" fields.

Ensure the "Enable SIP Session Timer" parameter is enabled. Next the Session Interval Timer needs to be configured. The recommended setting for "Session Interval" is 1800 seconds. The "Refresher" field needs to be configured for "Caller (UAC)" [User Agent Client] This allows the IP8000 to be in control of the session timer refresh.

Verify that the "Intra-Site Calls" and the "Inter-Site Calls" parameters under the" Voice Encoding and Quality of Service" section are configured for the proper CODEC desired. For the Intra-Site Calls verify the desired audio CODEC is configured for calls within the system, this is typically configured for 64 Kbps (G.711) and is recommended for use with the IP8000. The settings should then be confirmed for the desired audio CODEC for Inter-Site calls (calls between sites), typically configured for 8 Kbps (G.729).

Note: The IP8000 conference phone uses both G.711 and G.729 CODECs. The CODEC setting will be negotiated to the highest CODEC supported.

You must disable the parameter "Always Use Port 5004 for RTP", it is required for implementing SIP on the ShoreTel system. For SIP configurations, Dynamic UDP must be used for RTP Traffic. Note: If the box is unchecked MGCP will no longer use UDP port 5004; MGCP and SIP traffic will use dynamic UDP ports. It is also important to note that this "one time" setting requires a system restart (IP phones, ShoreGear switches & servers) to take effect.

Sites Settings

The next settings to address are the administration of sites. These settings are modified under the ShoreWare Director by selecting "Administration" then "Sites" (Figure 3).
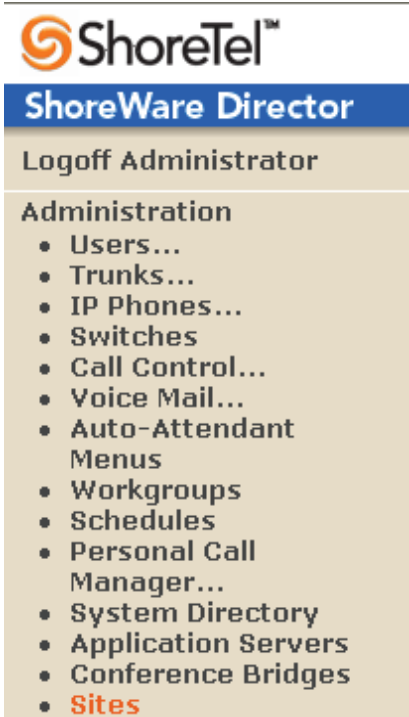

Figure 3 – Administration/Sites

This selection brings up the "Sites" screen. Within the "Sites" screen select the name of the site to configure. The "Edit Site" screen will then appear. The only change required to the "Edit Site" screen is to the "Admission Control Bandwidth" field (Figure 4).

Figure 4 – Admission Control Bandwidth

The Admission Control Bandwidth defines the bandwidth available to and from the site. This is important as SIP devices may be counted against the site bandwidth. See the ShoreTel Planning and Installation Guide for more information. When a call is "Intra-site" it will not count against the "Admission Control Bandwidth" unless "Teleworker" is checked in the "Trunk Group Page".

Switch Settings - Allocating Ports for SIP Trunks

The final general settings to configure are the ShoreGear switch settings. These changes are modified by selecting "Administration" then "Switches" in ShoreWare Director (Figure 5).

Figure 5 – Administration/Switches

This action brings up the "Switches" screen. From the "Switches" screen simply select the name of the switch to configure. The "Edit ShoreGear …Switch" screen will be displayed. Within the "Edit ShoreGear …Switch" screen select the desired number of SIP trunks from the ports available (Figure 6).
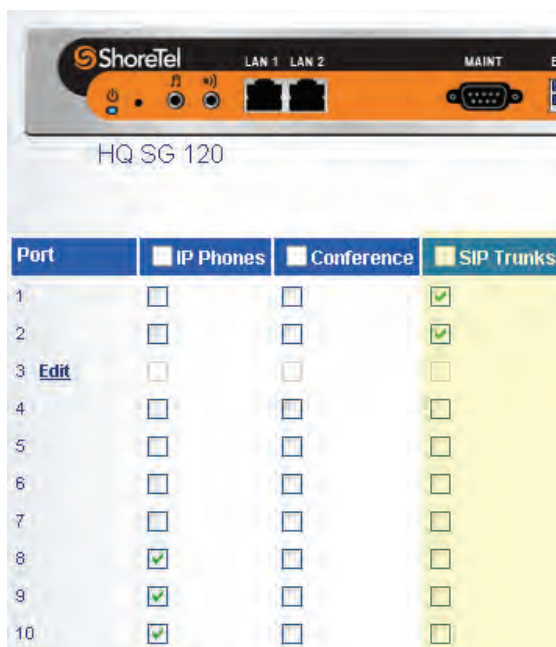

Figure 6 – ShoreGear Switch Setting

Each Check box designated as a SIP trunk enables support for 5 individual trunks.

ShoreTel System Settings - Trunk Group

ShoreTel Trunk Groups support both Dynamic and Static SIP end point Individual Trunks.

Note: A ShoreGear switch can only support one Trunk Group with Dynamic IP addressing.

The settings for Trunk Groups are changed by selecting "Administration" then "Trunks" followed by "Trunk Groups" within ShoreWare Director (Figure 7).

Figure 7 – Administration /Trunk Groups

This selection brings up the "Trunk Groups" screen (Figure 8).

Trunk Groups

Add new trunk group at site: [HQ Sunnyvale Demo ▼] of type: [SIP ▼] Go

Name	Type	Site
Analog Loop Start	Analog Loop Start	HQ Sunnyvale Demo
Consortium	SIP	HQ Sunnyvale Demo
Digital Loop Start	Digital Loop Start	HQ Sunnyvale Demo
Digital Wink Start	Digital Wink Start	HQ Sunnyvale Demo
New Trunk Group	PRI	HQ Sunnyvale Demo

Figure 8 – Trunk Groups Settings

From the pull down menus on the "Trunk Groups" screen select the "site" desired and then select "SIP" and click on the "Go" link. The "Edit SIP Trunk Group" screen" will appear (Figure 9).

Trunk Groups
Edit SIP Trunk Group
[New] [Copy] [Save] [Delete] [Reset]   Help

modify new

Edit this record   Refresh this page

Name: [New Trunk Group]

Site: HQ Sunnyvale Demo

Language: [English(US) ▼]

☐ Teleworkers

☐ Enable SIP Info for G.711 DTMF Signaling

☐ Enable Digest Authentication

   User ID: [   ]

   Password: [   ] [   ]

Figure 9 – SIP Trunk Group Settings

In the "Edit SIP Trunks Group" screen, input a name for the trunk group.

Determine whether the trunks need to be configured as inter-site trunks (trunks between sites) or intra-site trunks (trunks within a site). The next step is to choose the setting of the "Teleworkers" check box.

- By NOT checking Teleworker no bandwidth usage will count against the site and the Intra-Site codec will be used when calls are made Intra-Site.

- If the Teleworker checkbox "is" enabled then the call will be counted against the allocation of bandwidth and the Inter-Site codec will be used.

- Should Teleworker not be checked and the call goes from San Jose (location of the SIP Trunk) to another site in NY then Inter-Site will apply.

Note: The location of the SIP Trunk NOT the IP8000 is what is used to determine the location of the call.

The next item on this screen is the "Enable Digest Authentication" field. This is a SIP feature that allows a user ID and password to be established for authentication. If this feature is configured for the Trunk Group the same settings must be configured on the IP8000 although it is not necessary to enable this functionality for the IP8000 to operate properly.

The "Enable SIP Info for G.711 DTMF Signaling" box should not be enabled. Enabling SIP info is currently only used with SIP tie trunks between ShoreTel systems.

Figure 10 – Inbound Trunk Settings

For the Inbound Trunk Settings, ensure the "Number of Digits from CO" matches your current extension length. It is not necessary to select the "DNIS" (Dialed Number Identification Service) box to create a DNIS to extension mapping or the "DID" (Direct Inward Dial) box to input a DID range. You must enable the "Extension" parameter, this will allow incoming calls to be directed to the extension dialed. It is not necessary to utilize a "Translation Table", unless you plan on modifying the incoming digits. The last step for the Inbound Trunk configuration is to enable the "Tandem Trunking" parameter to allow trunking between trunk groups. The "Destination:" should be configured for the desired extension that a call should be routed in the event that a user misdials a number, the example above (figure 10) has an Auto Attendant configured. Trunk calls not routed by previous entries under the Inbound Trunk routing will be routed to the configured extension or as in Figure 10 to the Auto Attendant.

The next item to change for the SIP trunk groups is the outbound trunk configuration (Figure 11).

Figure 11 – Outbound Trunk Configuration

For the Outbound Trunk Configuration set the "Access Code" and "Local Area Code" fields for the system. For the "Trunk Services" boxes, typically none of these will be selected, except for "Caller ID not blocked by default", if not enabled the IP8000 will not receive Caller ID information when calls are sent via this trunk group.

Note: Remember, these are calls being sent from the ShoreTel system to the conference phone.

After these settings are made press the "Save" button to input the changes.

The next item to change is under "Trunk Digit Manipulation" (Figure 12).

Typically when sending digits to the IP8000 phone it is not necessary to check the boxes for "Remove leading 1 from 1+10D", "Remove leading 1 for Local Area Codes" and "Dial 7 digits for Local Area Code' because only the extension digits will be sent as this is an Off System Extension (OSE). No configuration is needed for the "Local Prefixes" parameter, or the "Prepend Dial Out Prefix".

Figure 12 – Trunk Digit Manipulation

Next configure an Off System Extension for each IP8000 phone you will deploy.

Selecting the "Edit" button for the Off System Extensions will bring up the "Off System Extension Ranges" dialog box (Figure 13).
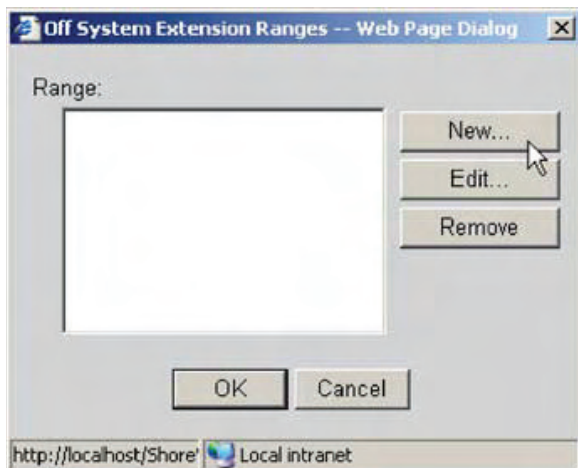

Figure 13 – Off System Extension Ranges

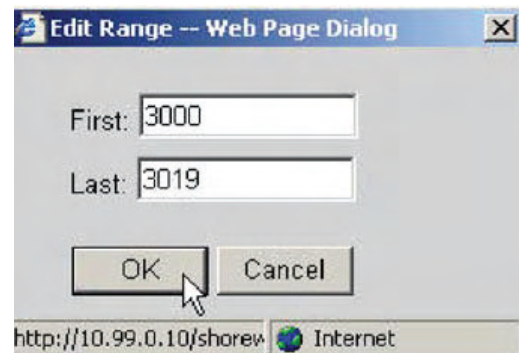Selecting the "New" button will bring up the "New Range" dialog box (Figure 14).

Figure 14 – Edit Range for Off System Extensions

Input a new range of off system extensions for the IP8000 phone and click "OK". For this example the extension range 3000-3019 has been configured, although you only really need one Off System Extension (OSE) defined, where First and Last are the same number. This completes the settings needed to set up the SIP Trunk Groups on the ShoreTel system.

Note: It is important to note that only one dynamic trunk group can be set up per ShoreGear switch. If another dynamic trunk group is desired another ShoreGear switch will be needed.

When it is desired to translate an off system extension to a 10 digit DID "Digit Translation" must be used. For example, when a call is placed to an IP8000 phone by dialing ext. 3000 but the IP8000 device is configured with 4083313000 then Digit Translation needs to be used. The main reason for doing this is when it is necessary for calls made from the IP8000 device to present a 10 digit number to the person being called. It may also be needed for 911 related functionality.

ShoreTel System Settings - Individual Trunks

This section covers the configuration of the individual trunks. Select "Administration" then "Trunks" followed by "Individual Trunks" to configure the individual trunks (Figure 15).

Figure 15 – Individual Trunks

The "Trunks by Group" screen, used to change the individual trunks settings, then appears (Figure 16).

Figure 16 – Trunks by Group

Select the site for the new individual trunk(s) to be added and select the appropriate trunk group from the pull down menu. In this example the site is "HQ Sunnyvale Demo" and the trunk group is SIP – Dynamic x5450-5499". Click on the "Go" button to bring up the "Edit Trunk" screen (Figure 17).

Figure 17 – Edit Trunk

From the individual trunks "Edit Trunk" screen, input a name for the individual trunks, select the appropriate switch, select the SIP trunk type and input the number of trunks. Select the switch upon which the individual trunk will be created. For the SIP Trunk Type decide whether the trunks are to be configured as dynamic or static. For the "SIP Trunk Type" field select either "Dynamic" or for a static configuration select "Use IP Address" button and input an IP address. In this example a dynamic SIP trunk type has been chosen but static trunks are typically configured for IP8000 conference phones. The last step is to select the number of individual trunks desired. Once these changes are complete, select the "Save" button to create the list of individual trunks).

Note: Individual SIP trunks cannot span networks. SIP trunks can only terminate on the switch selected. There is no failover to another switch.

After setting up the trunk groups and individual trunks refer to the ShoreTel Product Installation Guide to make the appropriate changes for the User Group settings. This completes the settings for the ShoreTel system side.

IP8000 Configuration

ShoreTel System Settings – General:

- Refer to the Quick Reference card for detailed information on connecting the required Ethernet cable with PoE to the unit.
- After applying power for the 1st time or after a reset to factory settings, the IP 8000 will require configuration of its locale and network settings.
- First of all the preferred language needs to be set. The languages are selected by pressing one of the digit keys as shown on screen e.g. to select English, press the digit 2.
- The LCD display will then show a heading of **Initial Configuration** and will display the following: "Configure your ShoreTel IP8000 for your locale and network." Press the (mute) button to continue to the next screen.
- The LCD will then display several screens of help text, starting with an explanation of how the volume button works, which acts as an up and down scroll button. Press the mute button to advance. Additional help screens are then displayed: for the button, redial button and how to access the Admin Login after initial configuration is complete. Advance through the screens by pressing the button.
- Next, the Preferences of the phone need to be configured. This process spans 4 menus :
  - Preferences (Menu 1 of 4)
    * *Location:* default setting is United States. If you wish to change it press the button, then use the volume buttons to scroll to the desired setting, press the button when you've selected the correct option. Follow this procedure for changing all of the options. Press the volume button, negative side (-), to scroll down to the next option.

* *Admin Password*: default setting is **1234**. Change this if desired.
  - Preferences (Menu 2 of 4)
    * *System Name*: default setting is ShoreTel. This is typically set to the name of the room in which the conference phone is deployed or some other meaningful value. It can be changed here of later using the web interface. Scroll down to the next option.
    * *Phone Number*: No default value (blank). This is best set via the Web interface later. Scroll to the next option.
  - Preferences (Menu 3 of 4)
    * *DHCP*: default is enabled. If static IP configuration is desired, be sure to disable DHCP, and then scroll down.
    * *IP Address*: no default value (null). Enter a value if needed and then scroll down to the next parameter
    * *Subnet Mask*: default is 255.255.255.0, Change as needed and scroll down to the next parameter.
  - Preferences (Menu 4 of 4)
    * *Default Gateway*: default is a NULL value. Configure if necessary and scroll down to the next option.
    * *Host Name*: default is NULL. Once you've configured these options, scroll down to the Save Settings prompt and press the button.
- Additional configuration is required which is best performed via the web interface as described below.

Retrieving IP Address

Before connecting to the IP8000 web interface, take note of the IP address of the phone as displayed in the bottom left corner of the LCD display.

Connecting to the IP8000 Web Interface

Access the web interface for the IP8000 conference phone by opening a web browser and entering the IP address (previously obtained) as follows: http://<IP address>

Example: http://10.0.1.51

You may be presented with the following screen when accessing the web interface:

Click on the **Yes** button to proceed.

Your web browser may need to be configured to allow Pop-Ups from the IP8000 IP address. In addition, it requires the installation of the Macromedia Flash Player. You will be prompted to upgrade if your installed version does not match what is needed for accessing the IP8000 web interface.

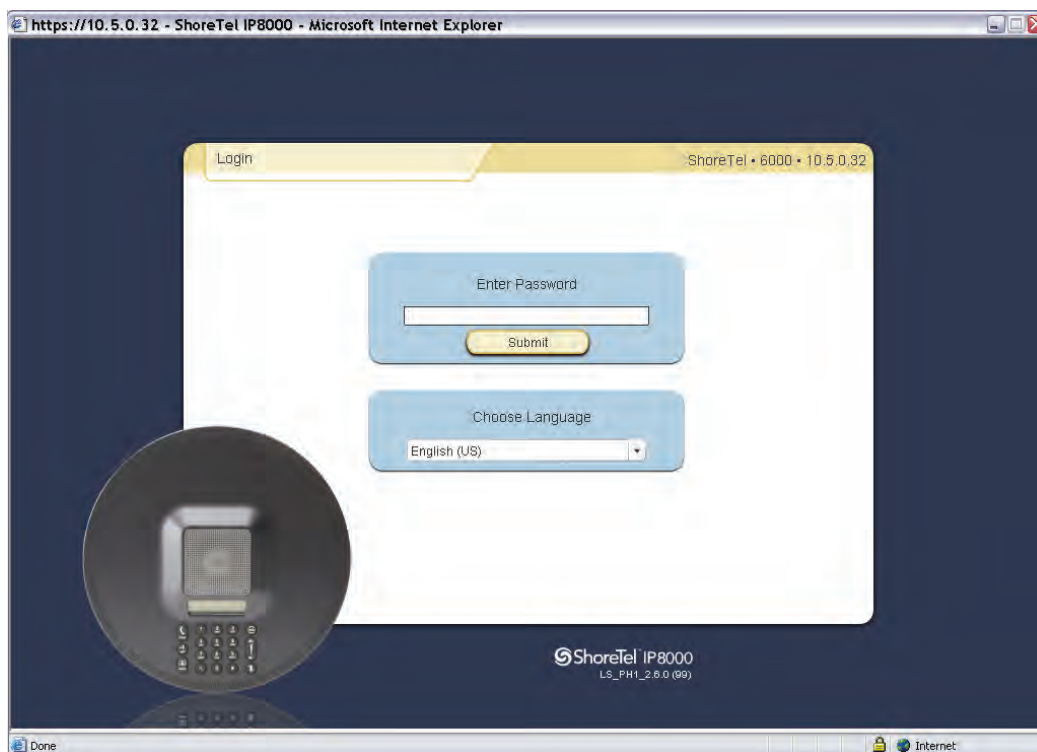Once the IP address has been input in the web browser a "Password" prompt will be presented as shown in Figure18.

Figure 18 – Login Screen

The default password is "1234" unless changed earlier during initial configuration. Once the password has been entered the Home page dialog will be displayed as shown in Figure 19.
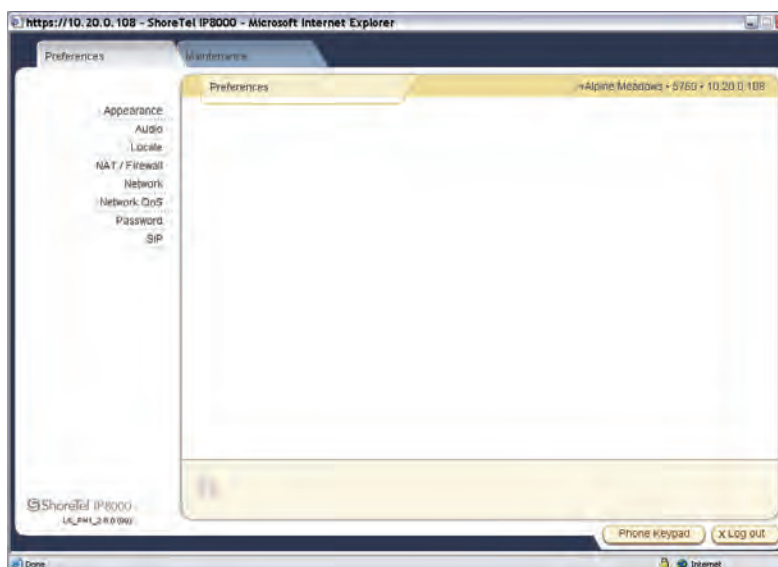

Figure 19 – Configuration Startup Screen

General Configuration

The following configuration steps are not mandatory but are highly recommended.

Navigate to the Preferences/Appearance section of the menu as shown in Figure 20 and apply the following settings:

1. Set the System Name to a string of your choice e.g. the name of the conference room in which the phone is deployed.
2. Set the Phone number setting to the assigned extension for the phone. This information appears on the Idle display of the device. This should also be a number (extension) that was defined in the Off System Extension range in the trunk group.
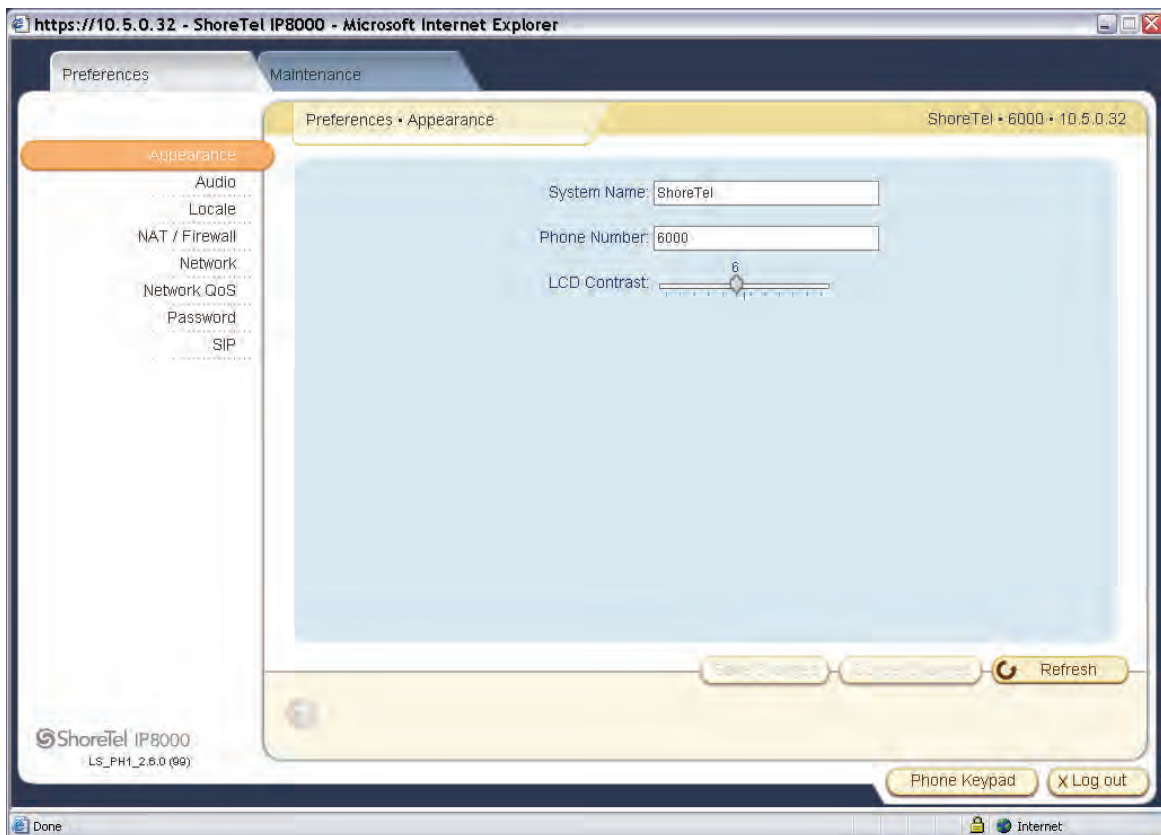3. Click on the "Save Changes" button to apply these settings.

Figure 20 – Preferences/Appearance Screen

SIP Configuration

Navigate to the Preferences/SIP/Server section of the menu as shown in Figure 21 and apply the following settings:

1. Set the SIP user name to match one of the previously defined Off System Extension range in the SIP trunk group. This will also be the number that sent for 911 calls, use caution when defining this value if you plan on initiating 911 calls from the IP8000 phone.
2. Set the SIP Proxy setting to Disabled.
3. Set the SIP Registrar setting to Enabled.
4. Set the registrar host name to the IP address of the ShoreTel switch that the conference phone will register with.
5. Set the registrar port setting to 5060.
6. Click on the "Save Changes" button to apply these settings.

Upon successful registration, the screen will show "Registrar Status: Registered".

If this message does not appear, review the settings on both the ShoreTel switch and IP8000 conference phone respectively.
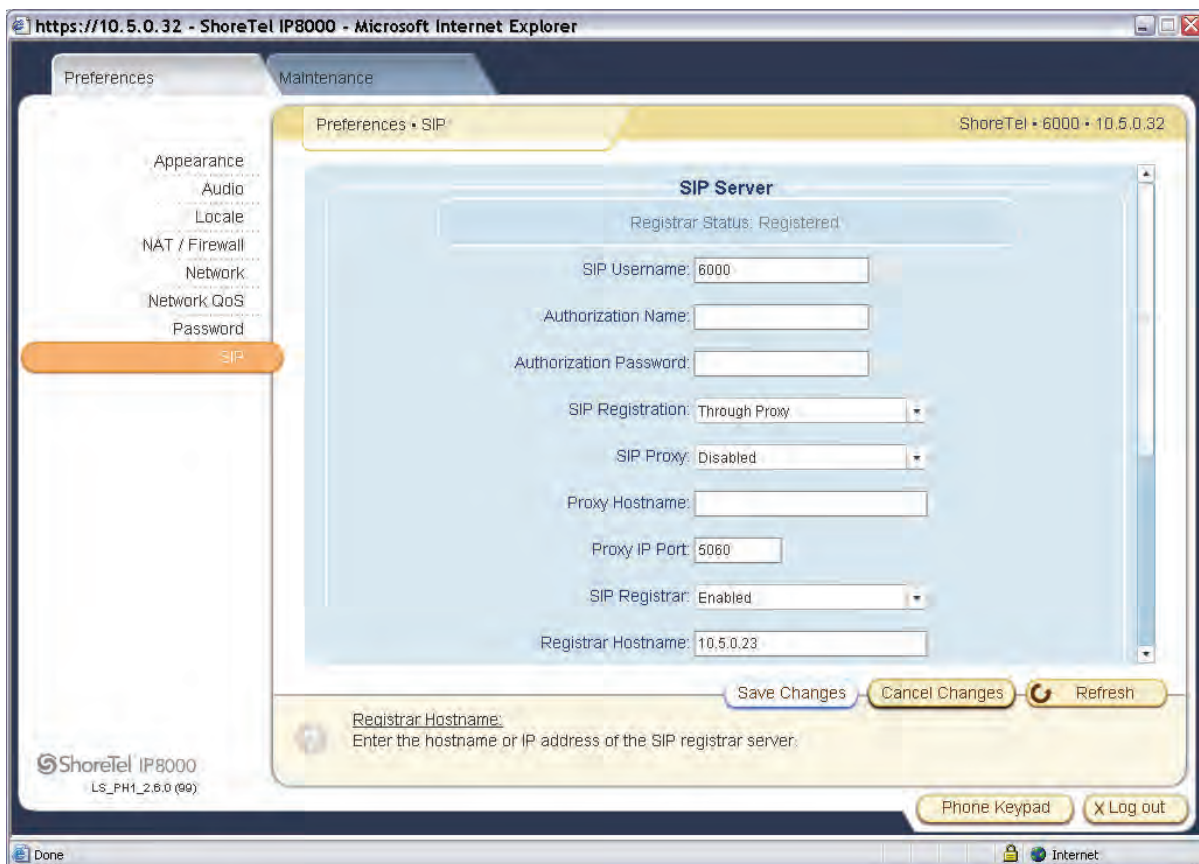
Figure 21 – SIP Configuration Screen

Firmware Upgrades

Should it be necessary to upgrade the firmware in the IP8000, the following process is recommended:

• Select the Maintenance tab in the web interface and click on the System Upgrade icon as shown in Figure 22.
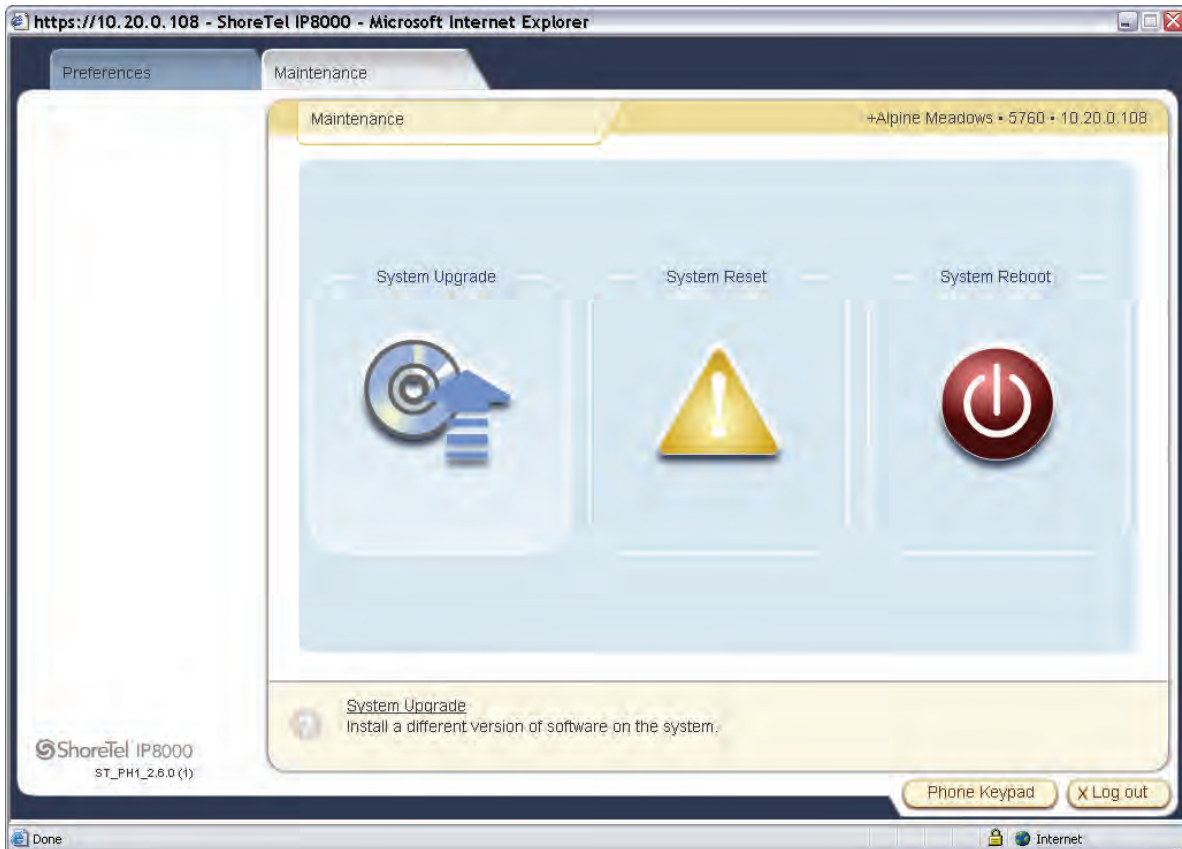

Figure 22 – System Maintenance Screen

- Click on the Browse icon and select the file from the local machine that is to be downloaded to the IP8000 as per Figure 23.
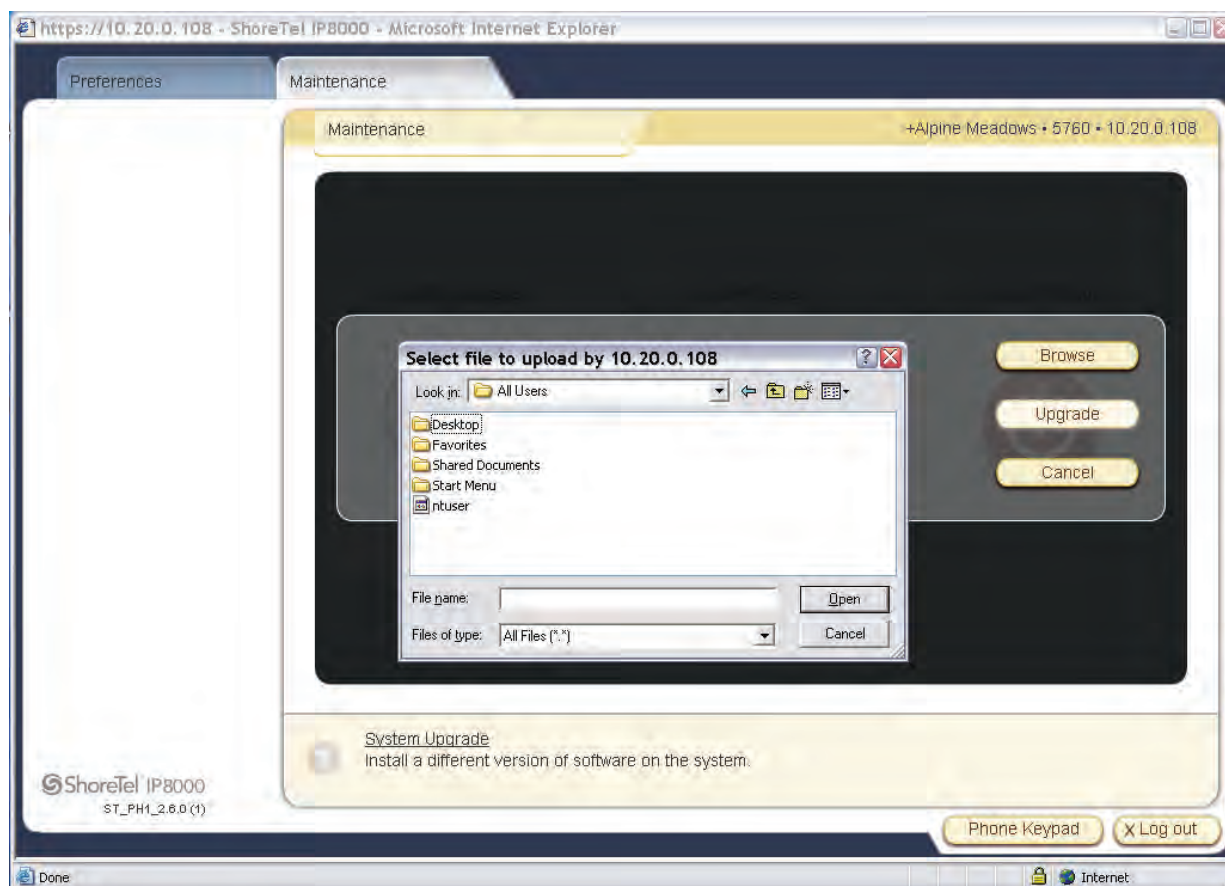

Figure 23 – Upgrade File Selection

- Once the file is selected, click on the Upgrade button to initiate the upgrade process. The conference phone will typically reboot after the upgrade process is complete.

Record of Change

This application note is subject to change. Updates and corrections are always welcome. Please submit any updates or corrections to info@shoretel.com.

Issue	Author	Reason for Change	Date
2.0	D. Rencken	Updated for ST 7.5	Sept. 25, 2007